



IFW

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant : Paul B. McCrary, Jr. et al. Art Unit : 1636
Serial No. : 10/718,262 Examiner : David Guzo
Filed : November 20, 2003
Title : METHODS FOR PRODUCING AND USING IN VIVO PSEUDOTYPED
RETROVIRUSES USING ENVELOPE GLYCOPROTEINS FROM
LYMPHOCYTIC CHORIOMENINGITIS VIRUS (LCMV)

Mail Stop Amendment
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

TRANSMITTAL

The following correspondence relating to this application is enclosed for filing:

1. Information Disclosure Statement (1 page);
2. Form PTO-1449 (5 pages);
3. Copies of Cited References (73 references); and
4. A Return Postcard.

Please date stamp and return the enclosed postcard. Please apply any charges or credits to Deposit Account No. 06-1050.

Respectfully submitted,

Date: 4 January 2005

Ann S. Viksnins
Ann S. Viksnins
Reg. No. 37,748

Fish & Richardson P.C., P.A.
60 South Sixth Street, Suite 3300
Minneapolis, MN 55402
(612) 335-5070 telephone
(612) 288-9696 facsimile

60267603.doc

CERTIFICATE OF MAILING BY FIRST CLASS MAIL

I hereby certify under 37 CFR §1.8(a) that this correspondence is being deposited with the United States Postal Service as first class mail with sufficient postage on the date indicated below and is addressed to the Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

January 4, 2005
Date of Deposit
Signature Lisa M. Becker
Typed or Printed Name of Person Signing Certificate



IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant : Paul B. McCrary, Jr. et al. Art Unit : 1636
Serial No. : 10/718,262 Examiner : David Guzo
Filed : November 20, 2003
Title : METHODS FOR PRODUCING AND USING IN VIVO PSEUDOTYPED
RETROVIRUSES USING ENVELOPE GLYCOPROTEINS FROM
LYMPHOCYTIC CHORIOMENINGITIS VIRUS (LCMV)

Mail Stop Amendment
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

INFORMATION DISCLOSURE STATEMENT

Copies of the references listed on the attached form PTO-1449 are enclosed.

This statement is being filed before the receipt of a first Office Action on the merits.

Please apply any charges or credits to Deposit Account No. 06-1050.

Respectfully submitted,

Date: 4 January 2005

Ann S. Viksnins
Ann S. Viksnins
Reg. No. 37,748

Fish & Richardson P.C., P.A.
60 South Sixth Street, Suite 3300
Minneapolis, MN 55402
Telephone: (612) 335-5070
Facsimile: (612) 288-9696

60261256.doc

CERTIFICATE OF MAILING BY FIRST CLASS MAIL

I hereby certify under 37 CFR §1.8(a) that this correspondence is being deposited with the United States Postal Service as first class mail with sufficient postage on the date indicated below and is addressed to the Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

January 4, 2005
Date of Deposit
Signature Lisa M. Becker
Lisa M. Becker
Typed or Printed Name of Person Signing Certificate

Substitute Form PTO-1449
(Modified)U.S. Department of Commerce
Patent and Trademark OfficeAttorney's Docket No.
17023-035001Application No.
10/718,262**Information Disclosure Statement
by Applicant**

(Use several sheets if necessary)

CFR §1.98(b))

Applicant

Paul B. McCrary, Jr. et al.

Filing Date

November 20, 2003

Group Art Unit

1636

U.S. Patent Documents

Examiner Initial	Desig. ID	Document Number	Publication Date	Patentee	Class	Subclass	Filing Date If Appropriate
	AA	5,512,421	04/30/96	Burns et al.			
	AB	5,643,756	07/01/97	Kayman et al.			
	AC	5,654,195	08/05/97	Sodroski et al.			
	AD	5,670,354	09/23/97	Burns et al.			
	AE	5,693,509	12/02/97	Cotten et al.			
	AF	5,711,964	01/27/98	Dattagupta et al.			
	AG	5,739,271	04/14/98	Sridhar et al.			
	AH	6,440,730	08/27/02	Von Laer et al.			
	AI	6,531,123	03/11/03	Chang			
	AJ	6,589,763	07/08/03	Von Laer et al.			

Foreign Patent Documents or Published Foreign Patent Applications

Examiner Initial	Desig. ID	Document Number	Publication Date	Country or Patent Office	Class	Subclass	Translation	
							Yes	No
	AK	WO 98/44788	10/15/98	PCT				

Other Documents (include Author, Title, Date, and Place of Publication)

Examiner Initial	Desig. ID	Document
	AL	GenBank Accession No. V00878 dated 02/25/03
	AM	Altschul et al., "Gapped BLAST and PSI-BLAST: a new generation of protein database search programs," <u>Nucl. Acids. Res.</u> , 1997, 25 (17):3389-3402
	AN	Altschul et al., "Basic Local Alignment Search Tool," <u>J. Mol. Biol.</u> , 1990, 215:403-410
	AO	Alvarez-Buylla et al., "Identification of neural stem cells in the adult vertebrate brain," <u>Brain Res. Bull.</u> , 2002, 57(6):751-758
	AP	Beyer et al., "Oncoretrovirus and Lentivirus Vectors Pseudotyped with Lymphocytic Choriomeningitis Virus Glycoprotein: Generation, Concentration, and Broad Host Range," <u>J. Virol.</u> , 2002, 76(3):1488-1495
	AQ	Beyer et al., "Recombinant Expression of Lymphocytic Choriomeningitis Virus Strain WE Glycoproteins: a Single Amino Acid Makes the Difference," <u>J. Virol.</u> , 2001, 75(2):1061-1064
	AR	Boshart et al., "A Very Strong Enhancer Is Located Upstream of an Immediate Early Gene of Human Cytomegalovirus," <u>Cell</u> , 1985, 41:521-530
	AS	Buchmeier et al., "Arenaviridae: The Viruses and Their Replication," <u>Fields Virology</u> , 4 th ed., 2001, Knipe and Howley (eds.), Lippincott Williams & Wilkins, Vol. 2, pp. 1635-1668

Examiner Signature

Date Considered

EXAMINER: Initials citation considered. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

Substitute Form PTO-1449

U.S. Department of Commerce
Patent and Trademark Office

Attorney's Docket No.

17023-035001

Application No.

10/718,262

**Information Disclosure Statement
by Applicant**

(Use several sheets if necessary)

Applicant

Paul B. McCrary, Jr. et al.

Filing Date

November 20, 2003

Group Art Unit

1636

Other Documents (include Author, Title, Date, and Place of Publication)

Examiner Initial	Desig. ID	Document
	AT	Burns et al., "Vesicular stomatitis virus G glycoprotein pseudotyped retroviral vectors: Concentration to very high titer and efficient gene transfer into mammalian and nonmammalian cells," <u>Proc. Natl. Acad. Sci. USA</u> , 1993, 90:8033-8037
	AU	Cao et al., "Identification of α -Dystroglycan as a Receptor for Lymphocytic Choriomeningitis Virus and Lassa Fever Virus," <u>Science</u> , 1998, 282:2079-2081
	AV	Chang et al., "Human Immunodeficiency Viruses Containing Heterologous Enhancer/Promoters Are Replication Competent and Exhibit Different Lymphocyte Tropisms," <u>J. Virol.</u> , 1993, 67:743-752
	AW	Chen et al., "Generation of packaging cell lines for pseudotyped retroviral vectors of the G protein of vesicular stomatitis virus by using a modified tetracycline inducible system," <u>Proc. Natl. Acad. Sci. USA</u> , 1996, 93:10057-10062
	AX	Corpet et al., "Multiple sequence alignment with hierarchical clustering," <u>Nucl. Acids. Res.</u> , 1988, 16:10881-10891
	AY	Culver et al., "Lymphocyte Gene Therapy," <u>Human Gene Ther.</u> , 1991, 2(2):107-109
	AZ	DePolo et al., "VSV-G Pseudotyped Lentiviral Vector Particles Produced in Human Cells Are Inactivated by Human Serum," <u>Mol. Ther.</u> , 2000, 2:218-222
	AAA	Dijkema et al., "Cloning and expression of the chromosomal immune interferon gene of the rat," <u>EMBO J.</u> , 1985, 4(3):761-767
	ABB	Doetsch et al., "Subventricular Zone Astrocytes Are Neural Stem Cells in the Adult Mammalian Brain," <u>Cell</u> , 1999, 97(6):703-716
	ACC	Doetsch et al., "Regeneration of a germinal layer in the adult mammalian brain," <u>Proc. Natl. Acad. Sci. USA</u> , 1999, 96(20):11619-11624
	ADD	Duisit et al., "Five Recombinant Simian Immunodeficiency Virus Pseudotypes Lead to Exclusive Transduction of Retinal Pigmented Epithelium in Rat," <u>Mol. Ther.</u> , 2002, 6(4):446-454
	AEE	Gewirtz, "Oligodeoxynucleotide-Based Therapeutics for Human Leukemias," <u>Stem Cells</u> , 1993, 11(Suppl. 3):96-103
	AFF	Goff, "Intracellular trafficking of retroviral genomes during the early phase of infection: viral exploitation of cellular pathways," <u>J. Gene Med.</u> , 2001, 3:517-528
	AGG	Gorman et al., "The Rous sarcoma virus long terminal repeat is a strong promoter when introduced into a variety of eukaryotic cells by DNA-mediated transfection," <u>Proc. Natl. Acad. Sci. USA</u> , 1982, 79:6777-6781
	AHH	Grossman et al., "Successful <i>ex vivo</i> gene therapy directed to liver in a patient with familial hypercholesterolaemia," <u>Nat. Genet.</u> , 1994, 6:335-341
	AII	Henry and Campbell, "A Role for Dystroglycan in Basement Membrane Assembly," <u>Cell</u> , 1998, 95:859-870
	AJJ	Henry and Campbell, "Dystroglycan inside and out," <u>Curr. Opin. Cell Biol.</u> , 1999, 11:602-607
	AKK	Higgins and Sharp, "Fast and sensitive multiple sequence alignments on a microcomputer," <u>CABIOS</u> , 1989, 5(2):151-153
	ALL	Higgins et al., "CLUSTAL: a package for performing multiple sequence alignment on a microcomputer," <u>Gene</u> , 1988, 73:237-244
	AMM	Huang et al., "Parallelization of a local similarity algorithm," <u>CABIOS</u> , 1992, 8(2):155-165
	ANN	Johnston et al., "Minimum Requirements for Efficient Transduction of Dividing and Nondividing Cells by Feline Immunodeficiency Virus Vectors," <u>J. Virol.</u> , 1999, 73(6):4991-5000

Examiner Signature

Date Considered

EXAMINER: Initials citation considered. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

Substitute Form PTO-1449 (Modified)	U.S. Department of Commerce Patent and Trademark Office	Attorney's Docket No. 17023-035001	Application No. 10/718,262
Information Disclosure Statement by Applicant (Use several sheets if necessary) (37 CFR §1.98(b))		Applicant Paul B. McCrary, Jr. et al.	
		Filing Date November 20, 2003	Group Art Unit 1636

Other Documents (include Author, Title, Date, and Place of Publication)		
Examiner Initial	Desig. ID	Document
	AOO	Kang et al., "In Vivo Gene Transfer Using a Nonprimate Lentiviral Vector Pseudotyped with Ross River Virus Glycoproteins," <u>J. Virol.</u> , 2002, 76(18):9378-9388
	APP	Karlin and Altschul, "Methods for assessing the statistical significance of molecular sequence features by using general scoring schemes," <u>Proc. Natl. Acad. Sci. USA</u> , 1990, 87:2264-2268
	AQQ	Karlin and Altschul, "Applications and statistics for multiple high-scoring segments in molecular sequences," <u>Proc. Natl. Acad. Sci. USA</u> , 1993, 90:5873-5877
	ARR	Kasid et al., "Human gene transfer: Characterization of human tumor-infiltrating lymphocytes as vehicles for retroviral-mediated gene transfer in man," <u>Proc. Natl. Acad. Sci. USA</u> , 1990, 87:473-477
	ASS	Kenyon et al., "Aerosol Infection of Rhesus Macaques with Junin Virus," <u>Intervirology</u> , 1992, 33:23-31
	ATT	Kim et al., "Use of the human elongation factor 1 α promoter as a versatile and efficient expression system," <u>Gene</u> , 1990, 91:217-223
	AUU	Lehninger, "The amino acid building blocks of proteins," <u>Biochemistry</u> , 2 nd edition, 1975, The Johns Hopkins University School of Medicine, pp. 73-75
	AVV	Lever, "HIV and other lentivirus-based vectors," <u>Gene Therapy</u> , 1996, 3:470-471
	AWW	Maniatis et al., "Regulation of Inducible and Tissue-Specific Gene Expression," <u>Science</u> , 1987, 236:1237-1245
	AXX	Mann et al., "Construction of a Retrovirus Packaging Mutant and Its Use to Produce Helper-Free Defective Retrovirus," <u>Cell</u> , 1983, 33:153-159
	AYY	Markowitz et al., "A Safe Packaging Line for Gene Transfer: Separating Viral Genes on Two Different Plasmids," <u>J. Virol.</u> , 1988, 62(4):1120-1124
	AZZ	Meinkoth and Wahl, "Hybridization of Nucleic Acids Immobilized on Solid Supports," <u>Anal. Biochem.</u> , 1984, 138:267-284
	AAAA	Miletic et al., "Retroviral Vectors Pseudotyped with Lymphocytic Choriomeningitis Virus," <u>J. Virol.</u> , 1999, 73(7):6114-6116
	ABBB	Miller, "Human gene therapy comes of age," <u>Nature</u> , 1992, 357:455-460
	ACCC	Miller, "Cell-surface receptors for retroviruses and implications for gene transfer," <u>Proc. Natl. Acad. Sci. USA</u> , 1996, 93:11407-11413
	ADDD	Mizushima and Nagata, "pEF-BOS, a powerful mammalian expression vector," <u>Nucl. Acids Res.</u> , 1990, 18(17):5322
	AEEE	Myers and Miller, "Optimal alignments in linear space," <u>CABIOS</u> , 1988, 4(1):11-17
	AFFF	Neckers and Whitesell, "Antisense technology: biological utility and practical considerations," <u>Amer. J. Physiol.</u> , 1993, 265:L1-L12
	AGGG	Needleman and Wunsch, "A General Method Applicable to the Search for Similarities in the Amino Acid Sequence of Two Proteins," <u>J. Mol. Biol.</u> , 1970, 48:443-453
	AHHH	Park et al., "Therapeutic levels of human factor VIII and IX using HIV-1-based lentiviral vectors in mouse liver," <u>Blood</u> , 2000, 96(3):1173-1176
	AIII	Pearson and Lipman, "Improved tools for biological sequence comparison," <u>Proc. Natl. Acad. Sci. USA</u> , 1988, 85:2444-2448
	AJJJ	Pearson et al., "Using the FASTA Program to Search Protein and DNA Sequence Databases," <u>Meth. Mol. Biol.</u> , 1994, 24:307-331

Examiner Signature	Date Considered
--------------------	-----------------

EXAMINER: Initials citation considered. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

Substitute Form PTO-1449 (Modified)	U.S. Department of Commerce Patent and Trademark Office	Attorney's Docket No. 17023-035001	Application No. 10/718,262
Information Disclosure Statement by Applicant (Use several sheets if necessary) (37 CFR §1.98(b))		Applicant Paul B. McCrary, Jr. et al.	
		Filing Date November 20, 2003	Group Art Unit 1636

Other Documents (include Author, Title, Date, and Place of Publication)		
Examiner Initial	Desig. ID	Document
	AKKK	Rosenberg, "Human Gene Marker/Therapy Clinical Protocols," <u>Human Gene Therapy</u> , 1994, 5(1):140
	ALLL	Russell and Miller, "Foamy Virus Vectors," <u>J. Virol.</u> , 1996, 70(1):217-222
	AMMM	Sandrin et al., "Lentiviral vectors pseudotyped with a modified RD114 envelope glycoprotein show increased stability in sera and augmented transduction of primary lymphocytes and CD34 ⁺ cells derived from human and nonhuman primates," <u>Blood</u> , 2002, 100(3):823-832
	ANNN	Schauber et al., "Lentiviral vectors pseudotyped with baculovirus gp64 efficiently transduce mouse cells in vivo and show tropism restriction against hematopoietic cell types in vitro," <u>Gene Ther.</u> , 2004, 11:266-275
	AOOO	Schwartz et al., "Distinct RNA Sequences in the gag Region of Human Immunodeficiency Virus Type 1 Decrease RNA Stability and Inhibit Expression in the Absence of Rev Protein," <u>J. Virol.</u> , 1992, 66(1):150-159
	APPP	Sinn et al., "Lentivirus Vectors Pseudotyped with Filoviral Envelope Glycoproteins Transduce Airway Epithelia from the Apical Surface Independently of Folate Receptor Alpha," <u>J. Virol.</u> , 2003, 77(10):5902-5910
	AQQQ	Smith and Waterman, "Comparison of Biosequences," <u>Adv. Appl. Math.</u> , 1981, 2:482-489
	ARRR	Spiropoulou et al., "New World Arenavirus Clade C, but Not Clade A and B Viruses, Utilizes α -Dystroglycan as Its Major Receptor," <u>J. Virol.</u> , 2002, 76(10):5140-5146
	ASSS	Steffy and Wong-Staal, "Genetic Regulation of Human Immunodeficiency Virus," <u>Microbiol. Rev.</u> , 1991, 55:193-205
	ATTT	Stein et al., "In Vivo Treatment of Hemophilia A and Mucopolysaccharidosis Type VII Using Nonprimate Lentiviral Vectors," <u>Mol. Ther.</u> , 2001, 3:850-856
	AUUU	Stewart et al., "Lentiviral delivery of HIV-1 Vpr protein induces apoptosis in transformed cells," <u>Proc. Natl. Acad. Sci. USA</u> , 1999, 96(21):12039-12043
	AVVV	Stryer, "Conformation and Dynamics," <u>Biochemistry</u> , 2 nd edition, 1981, W.H. Freeman and Co., San Francisco, pp. 14-15
	AWWW	Subbramanian and Cohen, "Molecular Biology of the Human Immunodeficiency Virus Accessory Proteins," <u>J. Virol.</u> , 1994, 68(11):6831-6835
	AXXX	Talbott et al., "Nucleotide sequence and genomic organization of feline immunodeficiency virus," <u>Proc. Natl. Acad. Sci. USA</u> , 1989, 86:5743-5747
	AYYY	Trono et al., "HIV Accessory Proteins: Leading Roles for the Supporting Cast," <u>Cell</u> , 1995, 82:189-192
	AZZZ	Uetsuki et al., "Isolation and Characterization of the Human Chromosomal Gene for Polypeptide Chain Elongation Factor-1 α ," <u>J. Biol. Chem.</u> , 1989, 264:5791-5798
	AAAAA	Voss et al., "The role of enhancers in the regulation of cell-type-specific transcriptional control," <u>Trends Biochem. Sci.</u> , 1986, 11:287-289
	ABBBB	Wang et al., "Feline immunodeficiency virus vectors persistently transduce nondividing airway epithelia and correct the cystic fibrosis defect," <u>J. Clin. Invest.</u> , 1999, 104:R55-62
	ACCCC	Watson et al., "Targeted Transduction Patterns in the Mouse Brain by Lentivirus Vectors Pseudotyped with VSV, Ebola, Mokola, LCMV, or MuLV Envelope Proteins," <u>Mol. Ther.</u> , 2002, 5(5):528-537

Examiner Signature	Date Considered
EXAMINER: Initials citation considered. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.	

Substitute Form PTO-1449 (Modified)	U.S. Department of Commerce Patent and Trademark Office	Attorney's Docket No. 17023-035001	Application No. 10/718,262
Information Disclosure Statement by Applicant (Use several sheets if necessary) (37 CFR §1.98(b))		Applicant Paul B. McCrary, Jr. et al.	
		Filing Date November 20, 2003	Group Art Unit 1636

Other Documents (include Author, Title, Date, and Place of Publication)		
Examiner Initial	Desig. ID	Document
	ADDDD	White et al., "Airway Epithelial Cell Wound Repair Mediated by α -Dystroglycan," <u>Am. J. Respir. Cell Mol. Biol.</u> , 2001, 24:179-186
	AEEEE	Yamada et al., "Nanoparticles for the delivery of genes and drugs to human hepatocytes," <u>Nature Biotechnology</u> , 2003, 21(8) :885-890

Examiner Signature	Date Considered
EXAMINER: Initials citation considered. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.	